REMARKS

Claims 1-36 remain active in the application.

Claims 1-5 and 24 are rejected under 35 U.S.C. 102(b) over McMenamin. Dependent claims 6, 7, 16-23, 25 and 27-36 are rejected under 35 U.S.C. 103(a) over McMenamin in view of Saitoh et al.

McMenamin discloses a system for controlling the flow of vapor transported by a carrier gas for the production of semiconductor devices. The process is referred to as a "temperature controlled bubbler method." It maintains a constant vapor mass flow by closely controlling the bubbler temperature and the mass flow rate of the carrier gas stream (see page 2, lines 19-23). The purpose of McMenamin's system is different from the purpose of the present invention. McMenamin is particularly concerned with preventing introduction of metallic contamination in the vapor stream (see page 1, line 30-page 2, line 2). The purpose of the present invention goes well beyond that of McMenamin, by keeping the partial pressure of the gas raw material constant, the liquid raw material can be vaporized at a lower temperature so that autolysis of the raw material is reduced, and thus the vaporizing apparatus can be used continuously for long periods. The claimed method also helps prevent the partial hydrolization caused by small amounts of water existing as impurities, and gellation and crystallization of foreign impurities, thereby maintaining the purity of the raw material and the quality of the glass based material produced, as described on page 9, lines 3-12 of the specification.

Another purpose of the invention is to prevent fluctuations in temperature and pressure which would lead to occasional small clogs that change the back pressure in the line that supplies the raw material to the hydrolizing process.

To solve these problems, the claimed apparatus uses a pressure control circuit 34 and a temperature control circuit 20, individually. The pressure control circuit maintains a constant pressure inside the tank, while the temperature control circuit maintains a constant temperature of the raw material. Thus, the pressure control circuit 34 does not have any effect on the temperature and the temperature control circuit 20 does not have any effect on the pressure.

On the other hand, the vapor mass flow controller 40 of McMenamin controls both the temperature and pressure in order to provide a constant mass flow and prevent metallic contamination in the vapor stream. As shown in the equation on page 5, lines 15-25, the pressure in the bubbler may be changed according to changes in temperature. However, in

the present invention, the pressure is controlled separately from the temperature, and thus, both values are maintained constant.

Saitoh et al. was cited for teaching an apparatus for producing glass soot deposits, produced at a high deposition rate. However, the reference does not involve the production of a glass based material recquiring the high purity and uniformity of an optical fiber material. Saitoh et al. was cited merely to represent a system which could use the gaseous raw material, but combining Saitoh et al. with McMenanim would not have suggested either a need to control the temperature and pressure to be constants or the means to do so. Accordingly, the rejections should be withdrawn.

Claims 8-15 and 26 are rejected under 35 U.S.C. 103(a) over McMenamin and Saito in further view of JP 9-110457.

JP 9-110457 does not teach a filter "provided between said tank and said gas material supply valve" which filters the raw material supplied to the reaction vessel through the gas material supply valve, as recited in claim 8 (amended). The filter of the present invention prevents clogs from being generated in the gas material supply control valve 74, and thus claim 8 would not have been obvious in view of JP 9-110457.

Applicants submit that the case is not in condition for allowance. Early notification of such action is earnestly solicited.

Respectfully submitted,

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Appendix With Markings to Show Changes

IN THE CLAIMS

The following claims have been amended:

1. (Amended) An apparatus for manufacturing a glass base material and maintaining the purity of a raw material which is [an] a parent material of an optical fiber, comprising:

a tank which contains a raw material of [said] a glass base material to vaporize said raw material [to] and generate [a] the raw material in the gas phase;

a temperature control unit which controls a temperature of said raw material to be constant; and

a pressure control unit which controls a pressure of said raw material in the gas phase to be constant.

2. (Amended) An apparatus as claimed in claim 1, wherein said tank includes:

a gas phase region which contains said raw material in the gas phase; and

a liquid phase region which contains said raw material in the liquid phase.

3. (Amended) An apparatus as claimed in claim 2, wherein said temperature control unit and said pressure control unit control a partial pressure of said raw material [in gas phase] in said gas phase region by controlling an equilibrium vapor pressure in said gas phase region and said liquid phase region.

7. (Amended) An apparatus as claimed in claim 6, further comprising a gas material supply valve that controls a flow rate of said raw material in the gas phase from said tank to said reaction vessel.

8. (Amended) An apparatus as claimed in claim 6, further comprising a filter provided between said tank and said gas material supply valve that [which] filters said raw material in the gas phase supplied to said reaction vessel through said gas material supply valve.

24. (Amended) A method for manufacturing a glass base material and maintaining the purity of a raw material, comprising:

providing a raw material of said glass base material,

heating said raw material to vaporize said raw material and generate a raw material in the gas phase,

supplying a carrier gas to reduce [a] the partial pressure of said raw material in the gas phase to vaporize said raw material,

controlling a temperature of said raw material to be constant by adjusting said heating of said raw material, and

controlling said partial pressure of said raw material to be constant [in gas phase] by adjusting said supply of said carrier gas.

26. (Amended) A method as claimed in claim 25, further comprising; filtering said raw material in the gas phase and [said] supplying and hydrolyzing [of said] the filtered raw material in the gas phase.

27. (Amended) A method as claimed in claim 25, further comprising; controlling a flow rate of said raw material in the gas phase and [said] supplying and hydrolyzing [of] said flow rate controlled raw material in the gas phase.

28. (Amended) A method as claimed in claim [24] 25, wherein said supplying and hydrolyzing of said raw material [in a gas phase hydrolyzes said raw material in a gas phase] occurs in a reaction vessel; and

said hydrolyzing includes cooling said reaction vessel by circulating cooling water around said reaction vessel.

29. (Amended) A method as claimed in claim 28, wherein said [cooling cools said reaction vessel with] cooling water [which] contains anticorrosive chemicals.

33. (Amended) A method as claimed in claim 32, wherein said cooling water contains [said] inorganic nitride at a concentration substantially from 1 ppm to 10 ppm.

End of Appendix